



CONSERVATION CURRICULUM

Outside-In

The Curriculum for Grades 5-8 ties into the Missouri Conservationist magazine's February 2003 issue.

Lewis and Clark Learning Trunks

To supplement and enhance your Lewis and Clark studies, the Missouri

Department of Conservation makes Lewis and Clark learning trunks

available to educators. Each trunk is different but contains a variety of fun and exciting items, such as videos, curriculum guides, resource reading books, maps and equipment for various activities. These learning trunks are available on free loan, but they are in high demand. If you would like to borrow a trunk, please contact your local Conservation Education Consultant or your local regional office.

Imagine a Single Drop of Water is a 25-minute creative dance performance about our environment, the importance of clean water to all living things, and ways to prevent nonpoint source water pollution. This dance concert, performed by eleven young dancers from Jefferson City, delivers a powerful message about the importance of clean water and empowers youth to take responsibility for doing their part. This live performance is available for presentation at your school. For more information, contact Dance Concepts, Inc., 1612 Wilmore Drive, Jefferson City, MO 65109.

New Curriculum Publication for Teachers!

The Missouri Department of Conservation has published a great new activity book designed for fourth graders, titled "Missouri Wildlife Trails." This 40-page book includes information on such topics as the state's wildlife, landscape, rivers and settlement presented through text, illustrations and activities. There are also several activities dealing with new conservation challenges in Missouri today. A great addition to your MDC curriculum materials!

Conservation Careers

Fish Pathologist

Determining pathology in our fish population is a vital aspect of conservation. Fish pathologists investigate fish health problems to determine if they are parasitic, bacterial, viral, nutritional, or water-quality related. They conduct their work not only for the Missouri Department of Conservation, but also for commercial fish hatcheries, public waters, privately-owned lakes and ponds, bait wholesalers and retailers and state or commercial fish exhibits. Pathologists diagnose disease causes and then make recommendations for controlling those diseases. Once they have their findings, they prepare and distribute reports of those results. Another key function includes evaluating requests for importing certain species of live eggs or fish, including trout, salmon, charrs, graylings and whitefishes, into Missouri and then issuing the proper permits to allow the importation. Fish pathologists also distribute information and provide assistance to the public, so that citizens can do their part to help keep our fish populations healthy.

Fish Pathologists with the Missouri Department of Conservation have graduated from an accredited college or university with a Master's degree in fish health or aquaculture or have a Doctor of Veterinary Medicine degree with course work in aquatic animal health and have had some professional experience in fish health.

The Buffalo



PreK-2

Adapted from: *Conservation Seeds, Missouri Department of Conservation & Lesson Plan by Joan Hoehn, Cole R-V, Eugene, MO*

Did You Know?

Buffalo once roamed throughout Missouri. Native Americans and pioneers hunted them for food and clothing. Pioneers eventually killed nearly all of the buffalo, but they are available once again today. This activity will help introduce the buffalo and make children aware of buffalo as a food source.

Materials Needed

- Pictures of buffalo
- Pieces of brown felt
- Light brown felt
- Scissors
- Glue

Preparation

- Display the pictures of the buffalo in the classroom.
- Discuss how the buffalo lived here a long time ago and how the pioneers and Native Americans hunted them for food.
- Talk about how a buffalo and a cow are alike and how they are different.

What to Do

1. Cut buffalo steaks from the large piece of brown felt. Use the light brown felt to make steak bones to glue on the steaks.
2. Use the buffalo steaks in the pretend play area during free choice time. Include other foods, such as corn, turkey, etc., used by Native Americans and settlers.

Questions You Might Ask

- How do you think buffalo tastes?
- How do you cook buffalo?
- What is another name for buffalo?
- What other animals lived on the prairie?

Supplementary Activities for Younger Children

Block - Make buffalo from spools, pipe cleaners and material scraps. Place in the block area for children to play with during self-selected activity time. Include enough for a herd.

Block - Grow cookie trays of grass to simulate prairie. Place

in the block area during self-selected activity time along with the spool buffalo. As children play, discuss the way Missouri looked during the time of the buffalo.

Bulletin Board - Display the Missouri Prairie Birds poster, available from the Missouri Department of Conservation. As children show interest, discuss the habitat needs of prairie birds.

Field Trip - Visit a native prairie area.

Science - If available, bring in a buffalo hide for the children to touch and experience.

Nutrition - Plan a buffalo meat-tasting activity. Contact Rick & Diane Carmack of Carmack Farms in Glasgow, MO (660/338-2393) for buffalo meat or to get information about availability of buffalo meat in your area. Cook hamburger and steaks at school or bring in already-cooked meat or jerky for the students to sample.

Outside - Let one section of the play yard go without mowing to simulate prairie. Discuss the differences in habitat between the regularly cut grass and the "prairie" section.

Pretend Play - During self-selected activity time, provide pioneer dress-up clothes such as straw hats, overalls, cotton dresses, etc.

Supplementary Activities for Older Students

Math -

1. Use representations of buffalo to create simple addition and subtraction problem worksheets.

	+		=		-		=
9	+	2	=	20	-	11	=

2. Bring some buffalo nickels to class. Tell how the buffalo and the Indian were both honored on this nickel. The buffalo was almost extinct by 1913 when this nickel was put into circulation. Discuss the price of land at the time of the Louisiana Purchase (sold for about three cents an acre). Create a worksheet showing groups of buffalo nickels and have students calculate how many acres of land they could buy with each group of nickels.

Art - Have the students draw a picture of how they might use a buffalo or what a buffalo's habitat would look like.

Language Arts - Have the students write a short story about saving the buffalo - how, why, where or when to save it.

Who Are Meriwether Lewis & William Clark?

3-4

Developed by: Karen Hagedorn, Chance Elementary, Centralia, MO

Objectives

After completing this activity, students will be able to:

1. Define character sketch.
2. Scan reading material for detail.
3. Listen and comprehend detail from description.
4. Describe character traits of a person.
5. Compare and contrast character traits of two people using a Venn diagram.

Show Me Standards

Performance: 1.2, 1.4, 1.5, 1.6, 1.8, 2.1

Knowledge: CA3, CA4, CA5, CA6

Conservation Concepts

- Conservation may involve preservation, restoration and management.
- People are subject to the same natural laws that apply to all living things.

Materials Needed

- "The Story of Sacajawea, Guide to Lewis & Clark," by Della Rowland
- "Undaunted Courage: Meriwether Lewis, Thomas Jefferson, and the Opening of the American West," by Stephen Ambrose
- Other sources of information about Meriwether Lewis and William Clark
- Pencil, paper, Venn diagram outline
- Student copies of the Sacajawea book

Background Information

Obtain information from "Undaunted Courage" and other source books about the Lewis and Clark expedition

Preparation

- Discuss and define characters and character sketch.
- Demonstrate and practice using a Venn diagram.
- Read "The Story of Sacajawea" together in class.

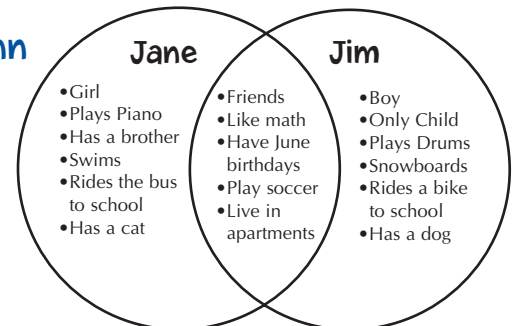
Procedure

1. Have students silently reread those pages of "The Story of Sacajawea" that have descriptions of Lewis and Clark.
2. Orally discuss these pages and share other information from "Undaunted Courage" and other sources.
3. Have students write down 1-3 traits of Lewis. Allow about 1-2 minutes to discuss with a partner, then with entire group.
4. Have students write 1-3 traits or facts about Clark. Allow 1-2 minutes to discuss with a partner, then with entire group.
5. As a group, discuss characteristics that are alike and ones that are different about each man.
6. Assign Venn diagram.

Evaluation

A good Venn diagram of Lewis and Clark, comparing and contrasting, will include at least 5 traits or facts in each of the 3 sections of the Venn diagram.

Sample Venn Diagram



Supplementary Activities

Reading – Do a Venn diagram showing the traits of various Indian tribes.

Language Arts – Have the students write one complete sentence in their journals that describes something about Lewis and a second complete sentence that describes something about Clark.

Math – Have students calculate the distance between various stopping points on the trip.

Science – Compare the flora and fauna of the expedition to what we see in the present. Make a list of the rocks and minerals that were found on the trip. Discuss and show pictures of the navigational instruments that were used at that time.

Social Studies – Draw a map of the Missouri River. Discuss the different Native American tribes that the explorers had contact with. Compare transportation as it was then versus how it is today.

5-8

OUTSIDEin

Guide

The Communication Chain

Developed by: Jean Mayer, Outdoor Skills Specialist,
Missouri Department of Conservation

Objective

After completing this activity, students will be able to:

- Recognize the frustration associated with trying to communicate in a foreign tongue
- Discover how that frustration can often lead to miscommunication

Show Me Standards

Performance: 1.5, 1.6, 2.2, 3.2, 3.4, 3.5, 4.6
Knowledge: CA1, 2, 4, 6, 7; SS2, 6; MA3, 4

Materials

Accompanying dialogues and code translation chart

Background

The fur trade got its start in the late 1700s but was really just taking off by 1800. The traders got their furs by bartering with the native tribes in Missouri and beyond. When President Jefferson realized how important the fur trade could be for the US, he asked Lewis and Clark to meet with the native tribes as part of their expedition. But the natives did not speak English. So how would they communicate with the different tribes they met along the way? Could they rely on sign language to converse? Would they need translators, and if so, who? And where would they find them? Lewis & Clark faced many challenges when trying to communicate with the various Native Americans they met during their expedition. At one point in their journey, they were forced to translate from Shoshone to Hidatsa to French to English. In August of 1805, The Corps of Discovery found themselves in dire straits. With winter quickly approaching and running out of supplies, they desperately needed to find a short and easy passage over the Continental Divide which would take them to the Pacific Ocean. Not only did they need a guide, but they also needed horses to make this crossing as fast as possible. In short, they needed the help of the Lemhi Shoshone. In order to communicate with Chief Cameahwait, the following translation chain was necessary: Lewis would speak English to Francois Labiche, who would speak French to Touissaint Charbonneau, who would speak Hidatsa to Sacagawea, who would speak Shoshone to Chief Cameahwait. When the chief's reply came, it moved back along the chain to Lewis.

Procedure

1. Share the background information above with the class.
2. Divide the class into small groups.
3. Copy and distribute the translation code.
4. Distribute copies of the dialogues between Meriwether Lewis and Chief Cameahwait.
5. On a separate sheet of paper, have the students decode each dialogue.
6. **Important** – Remind the students to translate the dialogues in the following order: Shoshone to Hidatsa, Hidatsa to French, French to English.
7. Have each group share their results with the class.

Dialogue Answers

1. "The water is rocky with many rapids. It is not possible to ride on the river or follow along it by land to the other side of the mountains."
2. "There are no buffalo to the west of the mountains. The Nez Perce tribes who live to the west come across the mountains to hunt buffalo."
3. "There is a difficult route on the northern end. I have never crossed the mountains, but an old man in my band has. Old Toby can show you the way."
4. "We will bring some roots and berries. My people have grown hungry because we cannot live near the buffalo. Our enemies have guns and we do not. If we had guns, we could live in the country of buffalo and eat as our enemies do."
5. "We have horses, but what do you have to trade for them?"
6. "I wish to serve you in every respect. I am sorry that you have no guns. But as we have lived without guns so far, we will wait for you to bring them in the future as you have promised. Let us trade for horses and some of my band will serve as your guide."

Translation Codes

When translating from **Shoshone to Hidatsa**, use this code to match the letters of the alphabet:

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
D	A	F	C	H	E	J	G	L	I	N	K	P	M	R	O	T	Q	V	S	X	U	Z	W	B	Y

When translating from **Hidatsa to French**, use this code to match the letters of the alphabet:

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
B	A	D	C	F	E	H	G	J	I	L	K	N	M	P	O	R	Q	T	S	V	U	X	W	Z	Y

When translating from **French to English**, use this code to match the letters of the alphabet:

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V

June 6, 1804

"Some buffalow Sign to day." Saline or Salt Creek "is about 30 yds. wide, and has So many Licks & Salt Springs on its banks that the Water of the Creek is Brackish . . .the water of the Spring in this lick is Strong as one bushel of the water is said to make 7 lb. of good Salt." Clark

June 30, 1804

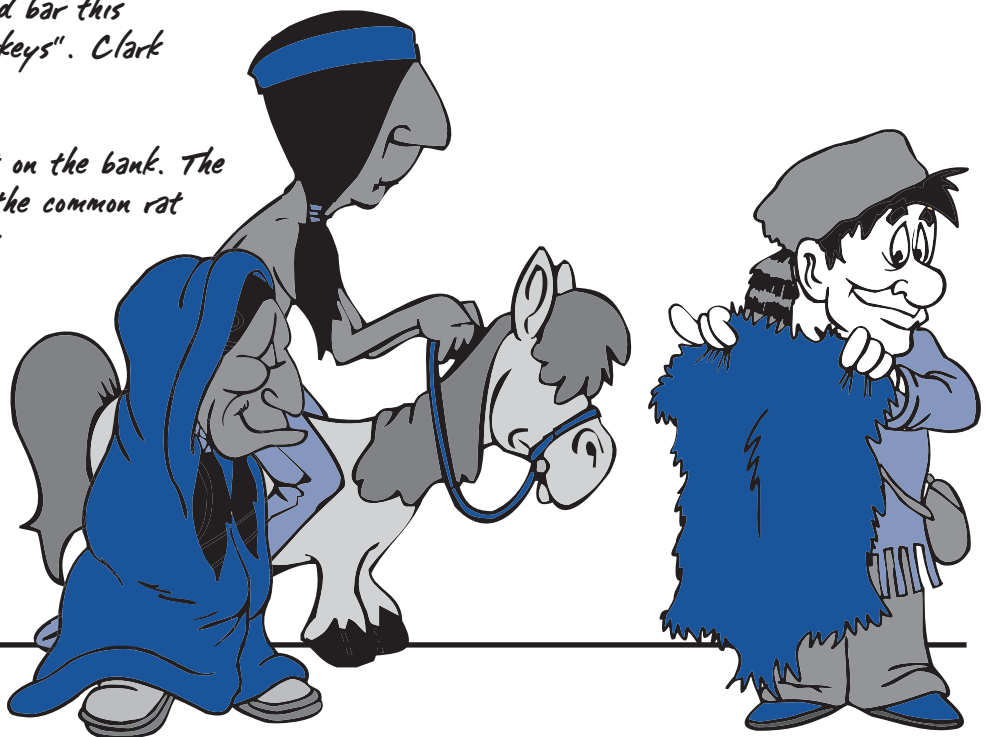
"Saw a verry large wolf on the Sand bar this morning walking near a gange of Turkeys". Clark

July 7, 1804

"Killed a wolf and a large wood rat on the bank. The principal difference between it and the common rat is, its having hair on its tail." Gass

June 13, 1804

"This is a butrfull place the prarie rich & extinsive." Clark The Grand River enters "just above a beatrfull and extensive prarie. . . About the entrance of this river the lands are extreemly fertile; consisting of a happy mixture of praries and groves, exhibiting one of the most beatrfull and picteresk seens that I ever beheld." Lewis



Dialogues

1.**Lewis:** "We are not familiar with this land. What can you tell us about the land to the west?"

Cameahwait: "XLG YCXGV KU VQEMA YKXL OCRA VCTKHU. KX KU RQX TQUUKFPG XQ VKHG QR XLG VKZGV QV JQPPQY CPQRI KX FA PCRH XQ XLG QXLGV UKHG QJ XLG OQWRXCKRU."

2.**Lewis:** "What is on the other side of the mountain?"

Cameahwait: "XLGVG CVG RQ FWJJCPQ XQ XLG YGUX QJ XLG OQWRXCKRU. XLG RGD TGVEG XVKFGU YLQ PKZG XQ XLG YGUX EQOG CEVQUU XLG OQWRXCKRU XQ LWRX FWJJCPQ."

3.**Lewis:** "How do the Nez Perce tribes cross the mountains?"

Cameahwait: "XLGVG KU C HKJJKEWPX VQWXG QR XLG RQVXLGVR GRH. K LCZG RGZGV EVQUUGH XLG OQWRXCKRU, FWX CR QPH OCR KR OA FCRH LCU. QPH XQFA ECR ULQY AQW XLG YCA."

4.**Lewis:** "Do you have some food? We have not eaten since yesterday."

Cameahwait: "YG YKPP FVKRI UQOG VQQXU CRH FGVVKGU. OA TGQTPG LCZG IVQYR LWRIVA FGECWUG YG ECRRQX PKZG RGCX XLG FWJJCPQ. QWV GRGOKGU LCZG IWRU CRH YG HQ RQX. KJ YG LCH IWRU, YG EQWPH PKZG KR XLG EQWRXVA QJ FWJJCPQ CRH GCX CU QWV GRGOKGU HQ."

5.**Lewis:** "We are from the United States. Thomas Jefferson is the great father now and you are part of his children. We have met with your enemies and they have promised not to make war anymore. If there is peace among the tribes, Americans can bring many goods, including guns and powder, so you may hunt and protect yourselves. But we cannot bring these things until we have crossed the mountains and reached the ocean. Do you have horses to help us cross the mountains?"

Cameahwait: "YG LCZG LQVUGU, FWX YLCX HQ AQW LCZG XQ XVCHG JQV XLGO?"

6.**Lewis:** "We have leggings, beads, handkerchiefs and knives."

Cameahwait: "K YKUL XQ UGVZG AQW KR GZGVA VGUTGEX. K CO UQVVA XLCX AQW LCZG RQ IWRU. FWX CU YG LCZG PKZGH YKXLQWX IWRU UQ JCV, YG YKPP YCKX JQV AQW XQ FVKRI XLGO KR XLG JWXWVG CU AQW LCZG TVQOKUGH. PGX WU XVCHG JQV LQVUGU CRH UQOG QJ OA FCRH YKPP UGVZG CU AQWV IWKHG."

9-12

1. Have the students choose a partner.
2. Set the stage for the activity by giving the following information:

You both are fishing along the Missouri. Your hook gets caught in some branches. As you are trying to loosen your hook, you see something shiny in the dirt. You pick it up. It is a large medallion. You excitedly show it to your friend. As you rub it to clean it off, you notice that on one side is a picture of Thomas Jefferson; the other side of the medallion is made up of crossing arms. As you are rubbing it, a mist starts to surround you. All of a sudden there are two strangers next to you, dressed in an odd manner. You and your partner are afraid yet curious. As you are about to run, one of the men speaks. "Who are you young natives? What tribe do you come from that you dress and speak so oddly?" You introduce yourselves. They in turn introduce themselves as Meriwether Lewis and William Clark. Having just finished the historical trip of the Lewis and Clark expedition in school, you realize that these two men do look like the Captains. The Captains declare that they have never seen this place before. You reply with "If you really are Lewis and Clark, surely this is the way you came along the Missouri River." Meriwether responds, "This is not like any part of the Missouri River that we ever saw." You and your partner decide to take the Captains on a new Voyage of Discovery along the Missouri. You offer to take them in your flat-bottom fishing boat. They look for the oars to help row when you laugh and explain, "We don't row. We have a motor." Now your voyage begins.
3. Give the students the following assignments:
 - Compare and contrast the geographical area along the Missouri – then and now. Explain about dikes and how they work; explain dams and their purpose.
 - Compare and contrast the wildlife along the Missouri River – then and now.
 - Describe how transportation along the Missouri has changed. Explain what necessitated that change.
 - Journal your thoughts as you ride this area. Interpret how you think Lewis and Clark must feel seeing so much change. Draw images from then and now. Share stories about what they saw then and what they might have encountered in Missouri.
4. Have students share their information with the class.



Assessment Criteria

Evaluate the students using the following criteria:

- Shows knowledge of the geography of the Missouri River – then versus now
- Shows knowledge of wildlife along the Missouri River – then versus now
- Shows understanding of how Louis and Clark may have felt and reacted upon visiting Missouri in the present day
- Shared information with classmates in creative ways

Adaptation

This activity could be adapted for middle school by doing the following:

- Divide the class into teams.
- Distribute copies of the 1803 map to each team.
- Explain that they are to map the rivers and mountains of the journey in the Louisiana Purchase and the Oregon Country. Then they are to create a modern map of the U.S. and identify for the class the modern day rivers (including dams if possible), mountains, states, cities, and National Parks. They may use a reproducible map of the U.S. or make their own.
- Advise the students that each team must share responsibilities and work load because they will be graded as a team.

Score the teams on the thoroughness of their research, neatness and accuracy of finished products and involvement of all team members.

June 17, 1804

"Came too to Make ores and a Cord for a Toe Rope." Clark "Made 20 oars & 600 feet of Roap." Whitehouse.

July 2, 1804

"We made a Mast of Cotton wood to day in the Course of the evening & night it turned of a butifull red Colour." Clark

July 4, 1804

"A great number of young geese and swan in a lake oposit to the mouth of the 4th of July Creek, in this lake are also abundance of fish of various species, the pike, catt, sunfish &c &c perch carp, or buffaloe fish." Lewis

July 8, 1804

"Proceeded on along the North Side of an Island called Nodaway Island. high well timbered land on the North Side." Ordway "This Island is Called Nadawa & is the largest I have Seen in the river, containing 7 or 8000 acres of Land Seldom overflowed." Clark

September 15, 1806

"An emence Site of pappaws & as the men were gathering them Saw a number of rattle Snakes and killed one of them and saved the skin." Ordway

September 17, 1806

"One of our party last night caught a large catfish, supposed to weigh 100 pounds". Gass

